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THE GENESEE FARMER.

SATURDAY, JULY 18, 1835.

Remarks of a Traveler.

(CONTINUED.)

Scientific Intelligence.

"I have understood from high authority that the vessel which was dispatched to fetch home our enterprising naturalists NUTTALL and TOWNSEND, and which had been struck by lightning on its passage round Cape Horn, was refitted and had proceeded prosperously on its voyage towards the Columbia River. Strong hopes are entertained that these indefatigable travelers are now on their return homewards.

"It has been clearly ascertained that DAVID DOUGLAS, the agent of the Horticultural Society of London, whom some of your readers may recollect to have seen about thirteen years ago at Lockport, where he was sedulously engaged in collecting indigenous plants,—was killed some months since by a wild bull in one of the Sandwich Islands. He had been cautioned to avoid the enclosures made for trapping these ferocious animals; but it appears that his zeal in the cause of Botany, overcame his prudence, and he fell a victim.

"Dr. WM. DARLINGTON is engaged on a new and enlarged edition of his *Florula Cestrica* which is now designed to include all the plants of Chester county. It will be a duodecimo volume of about five hundred pages. He informed me that one year more will be necessary for its completion, as every plant will undergo in succession, the most careful examination. From the high attainments of its author, this work must prove a most valuable legacy to American Botanists."

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Liming Land.

"All the best farmers of this district seem to consider the application of lime to their fields as the basis of good husbandry. As magnesian limestone is the sort that generally occurs, they have to be careful not to overdose, otherwise the remedy would be worse than the disease. Perhaps from thirty to sixty bushels to the acre have been more commonly applied; but the method of using it as a top-dressing for grass lands, seems to be gaining in repute; and a lot was pointed out to me on which one hundred bushels to the acre had been strewn with manifest advantage.

"It has been received as a rule that *the poorer the soil, the less lime it will bear.* What is the reason of this? The poorer the soil, the less vegetable matter it contains for the production of carbonic acid; and in a soil entirely destitute of it, it is probable that calcined magnesia would retain its caustic state for years. On the contrary, when this alkaline earth is scattered on grass lands, it falls in a bed of vegetable matter where fermentation is constantly going forward in warm weather; and consequently the magnesia as well as the quick lime soon becomes saturated and neutralized.

"I have said that every good farmer limes his land. The quantity of lime that is burnt for this purpose is very great; and one proprietor assured me he had already applied fifteen thousand bushels."

Leicester Sheep.

Extract of a letter to the Publisher from Mr. JOHN BAKER, dated 7th mo. 11, 1835:—"During the present week I have received from England two yearling rams and four ewes, of the improved Leicester or Bakewell breed, carefully selected from some of the best flocks, by competent judges. If thyself, or any of thy correspondents, would wish to see them, I should feel a pleasure in showing them. I live in Macedon, Wayne county, about two miles south from Macedon Locks."

Cherries.

We tender our acknowledgments to A. L. BEAUMONT, Esq. of Lyons, for a basket of choice Cherries, received the last week. They were of the Yellow Spanish and Late Duke varieties. Both kinds were large—the first named being among the largest we have ever seen, and of a peculiarly rich flavor, so much so that it is considered by many as ranking first on the list of cherries.

To Destroy the Snails or Slugs

With which the leaves of several kinds of fruit trees in this vicinity are so much infested, it is only necessary to dust them in the morning while the dew is on, with lime or ashes, which may be easily done by throwing a few handfuls of either into a tree. Another effectual method is to sprinkle the tree with a decoction of tobacco.

Tillage Husbandry.

Extracts from Lorain's Husbandry.

The texture of any soil is most advantageously altered by the roots and tops of the grasses, properly applied and ordered.

Grass lays, when properly applied and cultivated, are very productive, and enrich the soil far beyond what is generally supposed, or can in fact be accomplished by the usual practice. They also alter the texture of it so much, that it is capable of growing valuable crops, which were before opposed to its natural texture, and which could never have been profitably grown on it, until this alteration had been effected.

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The judicious application of this vegetation, will often supersede the necessity of ridging and under draining.

If nature and reason had been sufficiently consulted in the practice of husbandry, it would have been generally known, that ploughing a considerable mass of vegetation under a sandy soil, will as effectually prevent an injurious evaporation of moisture from it, as the application of any other substance commonly used for that purpose, until the vegetation is decomposed.

The fertility of rich, sandy soils, also determines that an injurious evaporation of moisture from them, is greatly retarded, even by the enriching matter arising from the decomposition of the vegetable substances while it continues in the grounds. Hence it is, that we hear but little complaint of the sandy texture of soils, until these substances, and the fertilizing matter arising from the decomposition of them, have been considerably exhausted by an injudicious husbandry. On the contrary, we find that the renters of land generally prefer sandy soils, while they continue rich; the cultivation of such grounds is far less laborious than those of a firmer texture, and may be progressing, when continued rains have put a stop to the plough in soils that are more retentive of moisture.

It is also worthy of remark, that the nutriment arising from the vegetation ploughed under the soil, will greatly promote the vigor of the plants: also, that the close shade formed by this increased vegetation, is well calculated to defend the soil from the injurious influence of the sun and air; whereas the mixture of clay, &c. with a sandy soil, merely alters the texture of it.

Many gentlemen of distinguished talents fondly imagine, that alterations made by combining the different earths properly, will effect a more productive, as well as lasting improvement, than can be made in any other way; it will be found, however that no combination of the simple earths, without the aid of animal or vegetable matter, can create a soil calculated for the efficient growth of plants: also, that after the animal and vegetable matter contained in this improved soil has been exhausted, it, as well as the unimproved ground, will be unproductive. Plants cannot prosper in any soil, unless a sufficiency of nutriment has been provided for them. Still it is readily granted, that a happy mixture of the different earths greatly favors vegetation; but this cannot be obtained, where nature has not formed it, without great labor and expense. No fact is more obvious in our recent settlements, than that every soil well stored with animal and vegetable matter is productive, until these substances have been too much exhausted: also, that after this evil has been effected, the fertility of the exhausted soil is restored, so soon as a sufficiency of animal and vegetable matter has been incorporated with it. Why then should we encounter the enormous labor and expense of altering the texture of our grounds, by mixing other earths with them, when we can grow luxuriant crops, and gradually improve all the different soils, without having recourse to this Herculean task?

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How ridges should be formed and cultivated in retentive soils.

The texture of stiff, retentive, clay soil, may be also as readily altered by grass lays; for, (as has been before observed,) every furrow slice forms an under drain, more especially if a good crop of grass be turned under the sod. The vegetation thus applied, more effectually cuts off the communication between the cold clay underneath and the furrow slice above: also furnishes a wider opening between the two to run off the moisture. This will frequently render ridging up useless, where it could not be dispensed with in the usual mode of cultivation; and often save the expensive practice of draining in still moister soils: provided the grounds be formed into ridges of a suitable width, and the clearing out furrows be properly regulated and cleaned out. But this is not all, for the innumerable roots of the grasses divide the soil minutely. The fermentation of them expands and opens it, and their gradual decay not only great enriches it, but also furnishes an inconceivable number of hollows or cavities throughout its whole extent. These openings being equal to the length, thickness, and number of the roots of the grasses and weeds, they are well calculated to admit the ready progress of the roots of the growing plants through every part of the soil. This, together with the powerful expanding force of fermentation, and the nutritive matter obtained by decomposition, forms a light, open, artificial bed, well prepared for the growth of plants. When the soil is thus

ordered, they do grow luxuriantly, and produce abundantly—provided the succeeding cultivation be calculated to secure these very obvious advantages.

After the grounds have been prepared as above described, and the seed planted at a depth suitable to the economy of the plants, a level and superficial cultivation should follow, even when the soil is retentive of moisture. In case, however of too much moisture, for a level preparation of the lay, the sod should be properly ridged up at first. To prevent the middle of the ridge from being injuriously high, the two first furrows ought barely to meet each other in the center of it.* As ridges are calculated to produce artificial drouths, the least possible declivity is best, especially as the under drains formed by the furrow slices, together with the clearing out furrows, will be found sufficient to run off the superfluous moisture. After the ridges have been formed, the roller should be used to sink those parts of the furrow slices that, by lying hollow, are raised above the rest. When this has been done, the seams between the furrow slices ought to be well closed with the tined harrow. If the sod bevery compact, (which generally happens in retentive lays,) a much better preparation for planting is obtained, by running the hoe harrow once or twice through the soil, before the tined harrow is used. The seams between the furrow slices will also be much better closed by this practice, as more loose earth will be obtained.

Care should be taken to keep the cleaning out furrows open during the cultivation of the crop. This may be done by the plough going up and down them, in the same tract, unless the excess of moisture render it necessary to preserve their original width. As the inequality in the surface will often prevent the moisture from running from one end to the other of the furrow slices, it should, in that case, meet with no obstacle that would prevent its escape at the sides of the ridges, into the cleaning out furrows.†

In the cultivation for the small grain that follows the fallow crop, care should be taken to order the course of the hoe and tined harrows in that way best calculated to reduce the ridges as near to the form of flat beds, as can be done by the harrow going lengthwise of the furrows: as when I shall hereafter describe the proper cultivation for wheat sown in the fall, it will clearly appear, that if the cleaning out or water furrows are not wider apart than half a perch, this crop will not suffer, when sown on flat beds; even if the soil is not only retentive of moisture, but also spouty or spungy to a considerable degree. It is evident, that the rotundity of ridges is very injurious, unless the spring and summer happen to be unusually dripping; and quite as obvious that the sun cannot act equally on every part of them.

I am well aware, that ridges of not half this width have been used and recommended by enlightened cultivators. It, however, should be recollected that these gentlemen pursued a cultivation calculated uselessly to waste the animal and vegetable matter contained in the soil. The latter, before it sinks deep into decay, has a tendency to keep the soil open, by separating its parts, even when it is only mixed through it; but this is far better effected by forming under drains with the furrow slices, well stored with vegetation.

If the grounds be not laid down in grass, to be continued for two or more years, after one crop of grain is sown on them, red clover should be sown with the small grain that followed the fallow crop. This should be mowed but once the ensuing year, and the second crop turned under wheat sown in the fall. In forming the flat beds for their crop, in grounds which have been ridged up, the ploughing ought to commence at the former cleaning out furrows. In this case, the water furrows will be formed in the middle of the former ridges or beds. Care should, however, be taken to put the two first furrows very closely together, or the beds will be lowest in the middle, which would be very injurious to the crop. The water furrows for this crop should also be well regulated, and properly cleaned out. As the ploughing for every succeeding round of crops will commence at the water furrows formed for the last cultivated crop, every fallow crop after the first may be grown on beds perfectly flat, or with a little rotundity, if this should be considered best.

The under drains formed by the furrow slices will not continue open *long* after the cultivated crop sown on the clover lay is removed. Neither should they, for the cleaning out furrows will be found sufficient to carry off the superfluous moisture from these grasses, as they require much more of it than cultivated crops. Hence it is that dripping climates are considered the best for grass, and that crops of small grain, when sown in the fall, do not generally succeed well in such climates, unless proper provision be made to run off the excess of moisture.

Here I wish the reader to observe, that the level cultivation means nothing more or less, than that, after the crops have been planted, all ridging, hilling, or molding up, should cease.

The injury done by hilling, ridging, and molding up plants is explained, as are also the advantages derived from a level and very superficial cultivation.

Hilling, ridging, and molding up plants, must have originated in barbarism, or but a few removes from it. The latter practice, however, has been abandoned by enlightened cultivators, and the former will share the same fate, when nature and reason are harmonized in the practice of husbandry. Hilling, ridging, and molding up plants have been the too general practice of the world from time immemorial. It is, however, as much opposed to reason and observation as it is to the economy of nature, and these ought to govern all our agricultural pursuits.

When the grounds have been properly prepared for planting, no possible good can arise from this inconsiderate practice; except when applied to celery, or other plants, which habit has rendered more palatable when blanched. The evils arising from it, however, are many and great: it compels the plants to form new sets of roots, so often as they happen to be ridged or hilled up. This is done at the expense of those already formed, as the roots of plants cease to perform their proper functions when buried too deep within the soil: thus the efforts of nature are diverted by the folly of man, to useless and very injurious purposes, instead of being applied to the growth and maturity of the crop.

If the soil be too thin and weak, or the habits of the plants too delicate to form repeated sets of roots readily, vegetation languishes still more, and the injury is greater. Hilling and ridging up plants, form furrows or gutters, exactly calculated to carry off the rains, and produce artificial drouths; yet so infatuating are long established practices, that the very obvious effects produced by them pass unregarded. Even sandy soils, which part with moisture too freely under the best system of management that can be devised, are generally cultivated in this way. This very inconsiderate practice turns up the grass roots and dung, (if the latter has been applied,) and exposes them to the very injurious effects of the sun, wind, and rain: consequently scatters much of the nutriment in the air, which should be secured for the crops and the improvement of the soil. Still we are told, that this is the proper way to "subdue the sod." This is not all, for the openings made by ridging up the plants, may be justly considered as main drains, communicating with innumerable avenues running in every direction through the ground, from which the moisture and confined air escape; and with them the nutriment contained in the enriching matter buried in the soil. This checks fermentation and decomposition, and with them the exciting nutritive principles arising therefrom. In fact, hilling and ridging up plants may be justly considered as in direct opposition to nature and reason, and of consequence to good husbandry. Still it has remained in general practice, except where the intervals between the plants have been so limited, that man, with all his ingenuity, could not devise means to effect the ruinous purpose, as in narrow drilled wheat, or turneps sown broad cast, &c.

The level cultivation which has been recommended should be only sufficiently deep to extirpate weeds. The less the open, mellow, artificial bed prepared for the growth of the plants is disturbed, the better it is calculated to promote vegetation: also, to secure the riches contained in it for the following crops and the improvement of the soil. The skim, with a proper rake attached to the hinder part of it, will effect this purpose in very narrow intervals, and the hoe harrow, with the tined harrow following it, in wider, with much less labor than the common plough, except where stones and stumps with superficial roots abound. There the shovel plough, (with a share but little more pointed than one-half of a circle,) should be introduced, until a better tool has been invented for this purpose.

The common plough cuts off, laps over, and mangles the roots of the plants in ridging them up. Although the soil is not diminished by this inconsiderate practice, the roots of the plants are confined in heaped up ridges. This compels them to take such unnatural directions that their prosperity is greatly abridged; particularly in narrow intervals, and in these the injury is most observable.

When this instrument is used for ploughing from and to plants, the roots on the sides of them next to the intervals are cut off. The gentleman who recommended this practice must have seen its injurious effects by the paler complexion and very slow growth of the plants, until they recovered from the very manifest injury done to them by this truly barbarous operation.

If they had recommended the tops to be cut off at the same time, uniformity would have been better preserved, with the additional advantage that might be derived from a new set of tops as well as roots. The subject is really too ludicrous to be treated seriously. Still, gentlemen of great talents have recommended this practice: however, nature, reason, and practice united, clearly determine that the less plants are injured in the cultivation, the better, provided the cultivation be equally good; and it may be far better. Repeated ploughing and harrowing pulverise the soil, and leave it quite open and mellow. It, however, too soon becomes compact, in consequence of the loss of the animal and vegetable matter exposed to useless waste by this injudicious practice, unless the soil be so rich as not to be materially affected by this very inconsiderate waste. Whereas, the fermentation of the animal and vegetable matter, when closely confined under the soil, will keep it continually open and mellow, for the ready admission of the roots of the plants.

We are told that cutting the roots increased the number of them, and that this multiplication of the roots greatly promotes the growth and prosperity of the plants. No question but that more branches will spring out from the stubs, after the roots have been cut off. It should, however, be recollected, that nature has formed the roots exactly to suit the economy of the plants, and that no possible good, but much evil, must arise from the ill judged attempts of man to improve the formation of them; especially by mutilating them irregularly, as is done by the plough. The injury done by this practice is readily seen by the procrastination of the growth of the plants until these new sets of roots are formed.

I have carefully pruned, and too often ruggedly mutilated annual plants, by various injudicious systems of cultivation; but evil, instead of good, invariably followed, except when I removed the suckers growing near to the roots of their parent stem, and believe that even this operation should be very carefully performed, and while the suckers are very young.

Still, I do not question that the gentlemen who recommended ploughing from and to plants, grew good crops in that way. It should still, howe-

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* See Low's directions for the best method.

† After very heavy rains, the plants standing in hollow parts of the field are sometimes very much injured, unless slight drains are formed by the hand hoe across the ridge where the water remains stagnant.

ver, be remembered that talents, capital, and industry, have often done this, when a highly interesting part of the management has been excessively bad.

The usual mode of cultivation is not well calculated to subdue weeds. The seeds are as often turned down beyond the power of vegetation, as they are turned up. They are also buried underneath the heaped up ridges, and when the grounds are cultivated for the small grain, they are spread abroad. As this favors the vegetation of them, they often greatly injure the crops. These facts are best seen when the grounds have been manured for a fallow crop, with dung made by cattle fed on clover hay. In that case, the seeds buried under the ridges often produce as luxuriant crops of this grass as if they had been sown. This does not happen when a level cultivation has been properly executed. It turns up none of the seeds that are buried beyond the power of vegetation. They of course remain torpid, and as those near the surface vegetate, they are destroyed.

I have before observed, that nothing but fire, or some cause that acts in the same powerful way, will destroy the vegetative power of plants, as soon, or so effectually, as a well directed fermentation. Numerous instances of the powerful effects produced by this simple operation of nature, might be advanced. I have already mentioned some of them; but as it may lead the farmer to recollect others, and prevent the injury caused by them, I will briefly observe, that if a long spell of rainy weather takes place after grass has been mowed, and the swaths be not turned in due time, both the tops and the roots of the grasses covered by them are sadly injured, and sometimes effectually killed, by the fermentation occasioned by this covering alone. It also but too often happens, that both small grain and grass plants are greatly injured, or destroyed, by the still much lighter covering of the leaves blown on them from the adjacent woods; when a boy or a girl with a rake, timely used, could have prevented the injury.

Now, if fermentation alone be capable of doing this, when but partially favored, certainly vastly more is to be expected from this powerful agent, when its whole force is brought into full effect. No question but this is done when plants are turned upside down, and the vegetation arising from them regularly cut off a little within the surface of the soil by the hoe harrow, also overturned and effectually mangled by the tined harrow following it. The wounds inflicted on them, together with the close covering of earth above them, greatly promote fermentation, and of course hasten their destruction.

The reason why this powerful agent has not been brought into general use, seems to be simply this: farmers have not seen, when the tops and roots of the grasses, or other enriching manure are buried under the soil, and a proper cultivation pursued, that fermentation more effectually expands, divides, and keeps the grounds open and mellow than can be effected with the plough. We might, however, have long since seen the impropriety of the usual mode of cultivation, merely by walking through those parts of our woods which still remained well set with timber, and other native vegetation. There we might observe that our feet sunk freely into a soil, which nature had kept covered with leaves, and so effectually cultivated through the medium of this simple covering by fermentation alone, that the grounds were kept more open and mellow than our best cultivated fields: also, that the depth of this open texture was in due proportion to the animal and vegetable matter contained in the soil underneath the covering of leaves. We might likewise have seen that nature did not cut, rend, or mangle either the tops or the roots of the plants, and by this means debilitate and procrastinate the growth of them, nor form hills or mounds around, nor furrows nor ditches between them, to run off the moisture necessary to their growth.

There can be no difficulty in altering the present mode of cultivation, so as to save the farm yard manure, also, that arising from the roots of the grasses; and at the same time preserve the roots of the plants from injury by a level cultivation, when fallow crops are grown, or grass or clover lays alone. As peas and beans are frequently sown broad cast, and good crops of them are obtained in that way, they will certainly yield much larger crops, when kept free from weeds by a level cultivation.

Horticultural Exhibition.

On Monday afternoon, July 13, agreeable to public notice, the inspecting Committee of the Albany Horticultural Society met at the City Hall, and the doors were open to visiters at 6 o'clock. The display of flowers and fruits was grand beyond any former example. The entire detail would be too extensive for a newspaper communication; we therefore select a few of the most splendid parcels and articles.

From the Garden of Mr. Malson—Raspberries and strawberries very superior; carrots, onions, potatoes, and 3 plants double myrtle, all superb.

From A. Walsh, Lansingburgh—Cauliflowers, York cabbage, Mercer's and Ashley's kidney potatoes, and Windsor beans, unexampled for the season. Gooseberries and cherries of superior size and flavor.

Garden of the Orphan Asylum—Beans, white and red currants, carrots, Windsor beans, potatoes, tomatoes, and 1 pint raspberries; all excellent and in fine order.

J. I. Godfrey—Potatoes, beans, peppers, gooseberries and currants; few pods matchless peas; all very excellent.

S. Van Rensselaer, Sen.—Beets, carrots, potatoes and beans, of superior quality; also, a beautiful display of 140 varieties of flowers and ornamental plants, consisting of dahlias, green-house flowers, shrubs, herbaceous plants, biennials, annuals, with fruits of various kinds.

J. T. Norton—Red and white currants and gooseberries, remarkably large and fine.

S. Van Rensselaer, jr.—8 beets, weight 21 lbs., 8 carrots, 5¼ lbs., 3 heads cabbage, (York) 15 lbs., all raised in the open air; beans, Globe artichokes; also, an assortment of flowers.

E. C. Delavan—1 qt. Gooseberries, 12 of which weighed 12 ounces; also, 1 qt. large black Tartarian Cherries.

Dr. Platt Williams—Harrison's large White Heart Cherries and a branch of Currants, both extraordinary productions.

D. B. Slingerland—4 varieties of very delicious Cherries, 3 do. raspberries, gooseberries, and a fine assortment of flowers.

Messrs. Buel & Wilson, Albany Nursery—Varieties of Flowers, too numerous to particularize, 22 varieties of the most superb Dahlias, which the public are respectively invited to call and examine at the Seed Store of W. Thorburn. We know not where is the end of the road to perfection, but if the above displays have not reached it, we would entreat one who has an eye and a heart capable of admiring beauty, or a palate which can relish good eating, and who has a rod of ground to cultivate, to engage the next and each succeeding year with all the ardor of laudable emulation, and try to show us the *Ne Plus Ultra*.

W. THORBURN,
Chairman of Inspecting Committee.

To Young Farmers.

How to kill bushes and briers by the road side.—After weeding your corn you will often find a good supply of grass, bushes and briers, full of sap, growing beside your fences. To kill these, let three or four furrows be ploughed near the fence—let your boy with a shovel bend down flat to the ground the bushes and the briers, while you, with one of Patridge's four tined forks, throw on sods enough to bury them completely. This is as easy as to cut them, and is a much surer mode of curing the evil.

How to make manure.—Harrow this ridge of dirt once or twice during the summer, keeping the sods and bushes down close, and in November cart and spread it on your mowing ground, taking care to put light soil on to heavy, and heavy soil on to light lands. You may make good manure in this way for less than a shilling a load.

How to keep cattle out of the highway.—Cattle are much inclined to run in the highway either when that affords the best feed, or when they have no other pasture. By the process above recommended, you will compel these vagrants *to walk in different paths*, and if *your* fences be good the inclosures of their owners will be more likely to afford them an asylum.

This simple process then accomplishes three objects. It kills your bushes and briers, makes you a good manure, and drives stray beasts from the road. One more advantage shall be named,—besides what you gain in the additon of beauty to your highways and fields. Your rows of winter apple trees will grow and bear better by the roadside by ploughing in this manner, than they will when you leave the soil and bushes undisturbed.

Young trees, particularly, cannot contend with success against the roots of grass and bushes. Breaking up the soil, even if a part of it be carried away, is beneficial to them.

None but winter fruit should grow by the road side, and the Baldwin is here to be preferred to the Greening, as it grows more erect and will not rudely salute the civil traveler.

By picking these winter apples in season you will save nearly the whole fruit to yourself; but suppose you lose one half, and it gets into the pocket of the traveler, you can well afford it, for only half the shade of the tree falls on *your* land. And trees growing by a wall are usually much more productive than those standing in midfield.

Apple trees are not so ornamental by the road side as some other trees, but they are more useful, and they do less injury to the grass beneath and around them than any trees excepting the locust.

Few people are willing to devote time or land for merely ornamental trees, and we cannot expect that our roads will ever be shaded by them. I ask you, therefore, to consult your own interest—set out winter fruit trees that will grow erect, *on the south side of the road* in your field, near the wall, and I promise you as much profit from these as from any of your fruit trees.—*New England Farmer.*

Liquid Manures.

In the preceding volume of this work, page 134, there is a very interesting article on the propriety of using liquid manure for purposes of horticulture; a solution of soot and water is therein recommended, in the proportion of six quarts of the former to a hogshead of the latter. This mixture has been found to exercise a most salutary influence on *Peas*, *Asparagus*, and a variety of other vegetables to which it has been applied. We do not doubt the fact stated, and would here observe, that the *soap suds* made in a farmer's family, which is mostly thrown away, is one of the most effective manures that can be applied to vegetables and flowers of all kinds. From an experience of several years, we can testify to its invigorating effects, and recommend its use with confidence. There are but few families, anywise extensive, who do not make a sufficient quantity of this article, in the course of the year, to keep a garden of tolerable size, not only in good condition, but rich enough to secure good crops of vegetables.—*Baltimore Farmer and Gardener.*

A new machine for cleaning hemp is announced in the Edinburgh Quarterly Journal of Agriculture, which promises to supersede all others, and if what is reported of it be correct, to render the hemp crop far more profitable than it has been heretofore. The machine is composed of two metal plates, supported by springs to modulate the compressure, and the hemp in passing through these plates undergoes a friction, and after passing through several rollers, is wholly divested of its glutinous matter, and is of a soft delicate fiber, which may, after being hackled, be spun and applied to the same purposes as the finest flax. The apprehension is, that strength must be sacrificed in obtaining fineness of fiber.—*Cultivator.*

Visit to Mr. Stimson's Farm.

We continue our extracts from the Rev. H. COLMAN's Agricultural Tour, as published in the New York Farmer:

From Ballston I proceeded through Milton to Galway. The country, though not hilly, was of an undulating character, and presented large swells of land; the crops of grass, oats, and wheat, every where luxriant and abundant; Indidian corn healthy in its appearance, but very backward on account of the peculiar season; the soil a dark loam, in which sand predominated; not very deep and rather stony. This applied particularly to Galway; and here generally the farming appeared extremely well; and what struck me as a peculiarity, as it would almost every New Englander, and be remarked as very rare, especially in Massachusetts, the farms were generally laid out in rectangular and well fenced lots, instead of the anomalous, zigzag, winding, and indescribable forms, which every where prevail with us.

A principal object of my journey soon presented itself at a distance of two miles, which was the farming establishment and residence of Earl Stimson, Esq., whose dwelling house and numerous outbuildings, placed on a commandiug eminence, had more the appearance of a village than the domain of a private individual. His buildings consist of a spacious dwelling house, with extensive piazzas in front, several barns and stables, very extensive sheds, a large store, a three story building for a granery, cider house, &c.; a large slaughter house, cooper's shop, potash establishment, blacksmith's shop, and smaller dwelling houses, which, with the fame connected with them, had come into his possession, and might now be said to form a part of his domicil.

The situation, being at the rectangular junction of two large roads, was favorobile to the prosecution of his business as an extensive trader, and the keeper of a large hotel. The homestead includes about seven hundred acres, two hundred of which are in wood, and the rest are in meadow, pasture, or under the plough. He has himself favored the public with an account of his management and cultivation, in his address to the Saratoga Agricultural Society; and an exact and detailed statement of the produce and course of crops of a certain portion of his land is given by Dr. Steele, in his survey of the agriculture of Saratoga county, in New York, Memoirs of Board of Agriculture, Vol. II. p. 69. I shall, however, detail from recollection the account which I received from himself; and record such remarks as suggested themselves on the premises.

The soil is generally of a dark loam, resting upon sandstone and carbonate of lime. The analysis of the soil, as given by Dr. Steele, is subjoined:

Water,	9.5
Animal and vegetable matter,	12.5
Alumine,	17.5
Siliceous sand,	54.
Carbonate of lime,	3.
Soluble salts,	1.
Oxide of iron,	1.
	98.5
Loss,	1.5
	100.

The great roads passing through the farm, and crossing at its center at right angles, give a straight line to all the outside fences; and the fields, every where divided into rectangular lots of eight or ten acres, are enclosed by stone walls formed of small stones gathered from the land, and surmounted by posts and two rails. The cultivation exhibited an exemplary neatness, as in but a single instance did I remark any weeds or briars growing near the fences; and these had been recently mowed.

Mr. Stimson is highly systematical in his farming, and pursues a determined rotation of crops, beginning usually with wheat, then corn, barley, clover, and herdsgrass two or three years; then frequently depastures his fields for one year; after which they are again subjected to the plough, following the same rotation as before, excepting that corn is sometimes a first crop after the land is broken up; and flax sometimes takes the place of corn or barley in the rotation.

He manures his land once only in six years, excepting the application of plaster to his corn. He allows five loads of barn yard manure, and three of leached ashes, to an acre; and this is always spread upon the surface after ploughing for the first crop, and either harrowed or ploughed in by a very light ploughing. In ploughing he never permits the plough to go deeper than three inches; the sod is turned over flat, and then rolled, it being his great object to keep all the vegetable matter on the surface. In the ploughing for the second crop in the rotation, the sod being completely decomposed, is turned, and affords a fine soil for the ensuing crop. Though a good deal of the manure is in this way lost by evaporation, yet he considers this loss as much less than that which is occasioned by burying it under the sod. He deems leached ashes a most valuable manure, and much to be preferred to that which is unleached, which he considers as having a tendency at first to force the land, but in the end to impoverish it. Next to leached ashes, he deems lime the best manure for land. The opinions of so intelligent, experienced, and successful a farmer, are certainly entitled to the highest respect, and we shall not undertake to theorize on the subject; but the subject is still a matter for experiment, and deserves the most careful and philosophical investigation.

Wheat is generally the first crop in the rotation, in which case it is usually sowed in the autumn; and harrowed in at the rate of two bushels to the acre. His average crop is from thirty to forty bushels per acre. This year (1832) he has sixty acres in wheat. Of Indian corn his average product is about five thousand bushels. He assured me that for the last ten years it had exceeded the average rate of one hundred bushels to the acre. He plants an eight rowed kind, with a small ear, on the ground where he had wheat, in hills two feet eight inches apart each way; the places of planting being accurately marked out by a simple machine with four teeth, like a rake, and drawn by a horse, which marks the piece to be planted in one direction, and then crosses these marks at right angles. Four stalks only are left in the hill, and it is ploughed slightly, or harrowed twice. Sometimes plaster is applied to the hill, at the rate of about five pecks to the acre. He is of opinion that too much manure may be applied forany crop excepting corn. This cannot be manured too highly. Owing to the unfavorableness of the season, his corn, much of which had been planted twice, seemed quite small, and in his opinion would hardly yield him a third of a usual crop.

Potatoes are planted by him at the same distances as his corn, and on the outside of his cornfields. At the second hoeing of his potatoes, he takes pains to open the top of each hill with the foot, and to put a hoeful of dirt directly on the center, by which means the sun is admitted to the potatoes, which he deems likely to contribute very much to the increase of the crop. This simple operation is in accordance with Mr. T. A. Knight's lately broached views of the great importance of light and air to the productiveness of the potatoe crop; but in a partial experiment, I have not myself perceived any sensible advantage from it. His average yield of potatoes is about five hundred bushels to an acre; and he raises yearly about two thousand bushels.

Flax is likewise a valuable crop, of which he calculates to obtain at least twenty bushels of seed, and four hundred pounds of flax; commonly more than this. His flax fields, which he was then pulling, with a platoon of sixteen men, exhibited a most luxuriant growth. After the flax is pulled and rotted, he has it cleaned and prepared for market, for two and a half cents per lb. What he usually obtains over six cents per pound for his flax, will pay for the cleaning of it. He is of opinion that it will do to repeat flax on the same land once in six years. Barley, or rye, is another crop in his usual rotation, and ordinarily follows corn. Barley he considers as much the best crop, with which to lay down his land to grass.

His plan of laying down his land to grass, is to sow the grass seed at the time he sows his barley, at the rate of 3 lbs. of clover seed, and 4 qts. of timothy or herds-grass. His crop of grass averages about two and a half tons to an acre. He feeds many of his mowing fields until the 10th of June. His grass, as I saw it, was quite ripe, and farther advanced than we are accustomed to have it at the time of mowing; and this, perhaps, accounts for his practice of cutting his grass in the morning, and housing it at night of the same day, which he informed me he frequently did. The proper time of cutting grass, with reference to their nutritive properties, is a subject which has not received all the attention which it deserves. According to chemical analysis, some grasses are much more nutritive after their seed is perfected, than when cut in the flower. It is the reverse with other grasses. In respect, for example, to timothy or herds-grass, according to Sinclair's table annexed to Davy's Agricultural Chemistry, it is said that "the nutritive powers of the straws simply therefore exceed those of the leaves in proportion as 28 to 8; and the grass at the time of flowering, to that at the time the seed is ripe, as 10 to 23; and the latter math to the grass of the flowering crop, as 8 to 10."

Mr. Stimson mows his grass land usually two years, and pastures it the ensuing year. This completes his rotation of six years, and he then begins the same course again. Thus,

1, Wheat—manured.
2, Corn—plastered.
3, Flax, Rye, or Barley.
4, Clover and Herds-grass.
5, Clover and Herds-grass.
6, Pasture.

His potatoes are usually planted round his corn fields, three or four rows on each side, so as to render it convenient to come out with a horse and turn the plough. He puts one large or two good sized potatoes in a hill. He steeps his seed corn before planting in a mixture of 1-4 lb. of saltpeter, to 3 pints of water, and then rolls the seed in plaster.

He purchases large numbers of cattle in the fall; those which are in the condition to kill, he slaughters and packs; and it is then forwarded to the New York market, where it is repacked, inspected, and fully salted, at the expense of 75 cts. per barrel. The cattle not in condition for beef he winters, and disposes of the next spring and autumn.

He kills and packs great quantities of pork, and bacons the legs. For packing his beef he uses 4 quarts of salt with some saltpeter; and for his pork, 14 quarts of salt to each barrel, which he deems sufficient to keep it until it is repacked in New York. He considers this a better mode of disposing of his pork and beef, than to send his cattle on the hoof, or his pork unsalted, to market.

His preparation for his hams is 4 oz. saltpeter, 4 qts. of salt, 1 pint of molasses, 1 oz. of pearl-ash, to 100 wt. of meat. They are to be smoked 3 weeks with maple or walnut wood. Recently he slaughtered 20 hogs, whose average weight was 414 lbs. each. His hams are preserved by being sowed in paper, or in coarse bags, and white-washed, and suspended in his storehouse. He has at present 700 sheep, which he considers as a profitable stock. He has thirty cows. He has paid little attention to the improvement of his stock, selecting his cows from the numerous droves which he purchases for feeding or slaughter. He never puts his young cattle in the barn. He has large and commodious sheds for their protection; and he always chooses to have wooden floors in the sheds for them to lie upon. He chooses to keep his different kinds of stock separately from each other: his milch cows in one yard, his young cattle in another.

With his laborers he always makes a written agreement, stipulating to board them, but furnishing no ardent spirits; and requiring of them good manners and good temper; early rising; a readiness to assist in husking in the evening, and to do any extra job which may be customary on a farm; and an attendance upon public worship in their turn.

Such were a few hasty and cursory observations which occurred to me in a short but highly gratifying visit to this interesting and instructive establishment; and I beg leave to express my grateful sense of the kindness and hospitality which I received; and the politeness with which the information I sought was communicated to me. In extent, in productiveness, or in its admirable management, I have seen no individual establishment to be compared with it. In extent, I except the magnificent farm of Mr. Wadsworth in Genesco, which is confined to grazing, and where, a few years since, for it is some time since I had the gratification of visiting it, not a bushel of wheat was raised. As a dairy farm, likewise, that of Mr. Bussey, at Hoosic; and the grand establishment of Robert Smith, Esq., near Baltimore, where one hundred cows were soiled, are likewise before it; but I speak of it in respect to the variety of business, cultivation, and products; and the skill, system and success, displayed in its management.

Mr. Stimson has peculiar advantages in his abundant capital; in the profitable consumption of a large amount of his produce by means of his hotel, which is much frequented; in a most abundant supply of manure from his stables, slaughter house, piggery, and potash establishment; and in his facilities for procuring labor. But I saw no part of the process of his farming which may not be copied by other farmers, on a smaller scale; and especially as he does not apply a larger amount of manure to an acre than what is applied in other cases by many farmers.

The great points of difference between his own and the management of other farmers, and almost all other farmers, deserve particular attention. They consist, first, in the regular arrangement of his lots, which are all laid down upon a plan, and the management of each pursued systematically, and made matter of exact record.

Secondly, in his shallow ploughing, by which the vegetable mold is always kept in its proper place; or what he says, nature teaches is the proper place, on the surface.

Thirdly, in the incorporation of the manure with this vegetable matter, instead of burying it among the gravel or loam.

Fourthly, in his exact and systematic mode of planting; his corn being as regularly deposited as straight lines can make it.

Fifthly, in his economy of labor, his ploughing after breaking up the green sward, which is done by two horses, always being performed with one horse to a plough. He informed me that the last spring, with eight horses, he set eight ploughs in operation.

Sixthly, in his pursuing with each piece of land a regular rotation of crops. In this way the land is taxed but once in six years for the particular qualities in the soil demanded by each particular crop; and by being three years in grass and clover, a new supply of vegetable matter is left upon the surface, to be turned under for its improvement, preparatory to a second rotation.

His ploughs are an improvement upon the Scotch plough, and of very easy draught. Of other utensils, I remarked none of a peculiar construction. He has a superior cider mill, and made last year from his farm five hundred barrels of cider. He has contrived a saw to go by horse power, with which he says two men, a boy, and a horse, are able to saw thirty cords of wood per day for the fire.

His men breakfast at six o'clock; dine at 12 M; and sup when work is done at night. A large party of them were at work in a field nearly a quarter of a mile from the house, pulling flax, soon after 4 o'clock in the morning. He furnishes them a luncheon of bread and butter, or bread and cheese, in the field, at 10 o'clock A. M. and 4 o'clock P. M. Their drink, consisting of cider, cider and water, molasses and water, milk and water, is carried to them in the field. Above all, his farming, as well as all other of his operations, are under his constant and immediate supervision. To an inquiry, who was his foreman, his answer was, that he had no foreman, he was his own foreman. To every man was assigned his proper task, which he was expected to perform, so that the responsibility rested upon himself alone; and under this conviction he was more likely to be faithful. I quitted the place with a just admiration of its extraordinary management, and not without a deep surprise at the system, skill, care and success, with which such heavy and various concerns were carried on, and a press of business maintained and conducted, under which ordinary men would have been overwhelmed and confounded; the cumbrous and complicated machinery making its gyrations and movements without dislocation, without friction, and without any sensible concussion or jarring of the moved or moving body.

From the Farmer and Gardener.

Corn-Stalk Fodder.

In some late number of your "Farmer and Gardener," I read with much pleasure a detail of the management of the corn-stalk as a food for cattle, &c. First induced to turn my attention to this subject by the different communications to be found in the "Farmer," for many years back, I began in 1830 to test the value of the refuse of corn, when subjected to the process of steaming. I was not long inventing a strong, rough apparatus for my purpose, which succeeded well, and in which I prepared about twenty bushels at once. Previous to this, I had, however, fallen on a plan of saving my corn and stalk, &c. somewhat different from my neighbors, but in a way that the columns of your valuable paper had been long laboring to persuade the corn planters of the country to try fairly, viz: to cut down the stalks at the ground, at a certain stage of maturity, and at one effort to cure corn, stalks, blades, &c. in the field. I had seen this first practiced on the south branch of the Potomac, as far back as 1812: and about 1817, I determined to try the process in this section of Union, not being able to discover any solid reason why it should not succeed as well here as on the south branch of the Potomac, or elsewhere; but indeed compelled to believe, from a recollection of the climate I was in, that it must succeed here much better. In 1817, I tried six acres—cut it down at the ground, about a week after the blades were ready for stripping. I found a little shrinkage in the grain, but I felt satisfied, that as my corn was not like Pindar's razor, "made to sell," but to eat, that what was lost by the shrinkage was no part of the nutritive principle; and I did not despair of getting over that difficulty, by further trial, and by improving the mode of proceeding.

The following year I cut down five acres. I began the saving of this field of corn by going through it, as soon as a few of the under blades appeared ready to pull, and gathered and brought them home, throwing them in an old out-house to cure, and which, by a little turning over, I readily effected. I will remark here, that this five acres was a piece of corn on which I was trying the effect of rotten cotton-seed as a manure, by planting four stalks in a hill, on light land, at the distance of five feet by four. On this field I had determined also to try the full effect of an economical management, in saving the result of labor bestowed on the earth—"Save all," was my motto, and I literally saved every blade.

Before my corn required a second pulling of blades, I found the shuck on the ear in that state, which authorized, I believed, the next step, and the principal one I had in view, the new mode of saving the balance by one "*coup de main.*" The result of observation and reflection induced this determination, viz: that in the saving process, the mode of stacking the corn-stalks that would permit them to cure the most gradually would certainly admit the least loss by shrinkage, evaporation, &c. To effect this, I selected four strong, careful hands, to cut and lay down, taking eight rows at a through. On getting to the end of the rows, they turned round and gathered together sixteen hills, each bringing to one who at-

tended the stacking. As each man placed his arm full on the ground the but ends were pressed by him as far into the earth as possible, throwing the tops together, so that when the sixteen hills were brought together at the tops the mass presented a sugar loaf appearance, spread well at the bottom, to admit the entrance of air—tying at the top with a bandage of crab-grass found among the corn, and twisted into a small rope in a few minutes. In this way I cut and stacked my field. On the 10th day I found by an examination of the inside of the stacks, that the whole was cured in a way that I could not have exceeded by any other process, although the weather had been rainy occasionally. I hauled the whole home, and packed it away in open sheds and in old out-houses. In this state it continued, until winter's bleak and stormy weather admonished us that in-door business was to be attended to; when all the hands went to stripping "corn and fodder from stalks." In doing this, I observed the following order, viz: each individual threw his ear of corn, as he pulled it off, behind him, and his stalks on one side, laying them down with attention to regularity; and the fodder on the other—as soon as he had an arm full of stalks to remove, he rose and placed the stalks in a pile, casting the fodder into another depository. All this precaution, as regarded the stalks, was to have them in a situation that with expedition and convenience they could be placed in the cutting box, to which they were to be subjected. In one day's work, I had a prodigious pile of stalks thus stripped. The next rainy day I brought in my "Eastman," and a man and a boy soon reduced the pile to pieces, half an inch in length. Here, sir, I would just remark, what a quantity of this labor I got through within a short time, by pursuing every moment systematically, and being prepared for every operation before I commenced it. It will now be readily granted, that I had saved as much of the nutritive qualities of stalk, shuck, and blade, by my mode of curing, as was possible to effect; and also, that I had prodigiously diminished the labor usually bestowed in the common mode of saving corn and its refuse. At the same time that I was preparing the stalks, I also shucked, so that cutting up the stalks, I cut, at the same operation, a proportion of shuck with stalk.

But the principle object was yet to begin, viz: to prepare these cut stalks and shucks in such a way as would render them the most nutricious and palatable food for cattle. To effect this, I proceeded thus: I placed three strong hogsheads made of cedar, will pitched, on the outside, on a platform, about three feet from the ground, having at the bottom a large spigot to let off their contents. Just before these, I had a large trough placed at the distance of twenty feet, and well inclosed along with the hogsheads. Between the hogsheads and the troughs, I had the steam apparatus placed all under a shed. Into these hogsheads I threw a small quantity of boiling water, and into the water a portion of corn meal, (coarse ground,) just sufficient, when the cask was filled, to produce the vinous fermentation, as if going to distil; with a good straw mat top for each cask. After an hour, and well stirring, I filled up with cold, soft water, and left the mass to ferment. As soon as the liquid was ready, or just as the acetous fermentation was about to commence, I worked off in my steaming box a turn of the stalks and shucks, mixed up, and as soon as sufficiently steamed, I placed a quantity in my trough, pressing them well down with a false top, movable as I wanted, and now drawing the spigot from the cask ready, the liquid was permited to cover them, running along a portable, light trough, such as distillers use for conveying water. This I did in the evening, and by morning I took up in light buckets the quantity required for the morning's feeding of my oxen and cows, &c. placing it in the feeding troughs, stepping only a few feet, sprinkling a little salt over the mass. The cut stalks and shucks had become perfectly charged by absorption with liquid, at once one of the most palatable and nutricious preparations yet discovered—of this food I gave them plenty. The effect on the flesh and milk exceeded my most sanguine expectations. My cattle became excessively fond of it, and so I fed as to "lose nothing."

My casks, by little management I had always "under weigh," one always ready. I now ascertained to my full satisfaction, that I could not bestow too much trouble, (as it is called,) in saving my corn-stalks!

Satisfied of the value of my labor, I have since added to the steam box all refuse potatoes, turneps, cabbage leaves, beets, parsneps, carrots and pumpkins, squashes, cucumbers, &c.; in fine, all the vegetable productions of the field, orchard or garden, as the season may afford, "that nothing may be lost"—and I find that I am well paid for the labor bestowed. The last, after absorbing what they will contain of the liquid, goes to the support of "old Ned." AGRICOLA.

Leicester and Southdown Sheep.

Extracts from an article on the breeding, rearing, and fattening of Sheep, published in the last London edition of the "Complete Grazier:"

VI. The *Leicester* sheep take the lead among the *long-wooled kind;* and of these there are three nearly distinct species:

1. The *Forest Sheep*, which, though not confined to the open district of Charnwood Forest, were probably the common field stock and original breed of the country. They are mostly polled, though some have small horns; are generally white, but sometimes gray-faced, with legs of the same color; are covered with coarse combing wool; and are altogether an inferior race.

2. The *Old Leicester*, which are probably descended either from the still more ancient stock of Charnwood, improved by better feeding, and by crosses with rams from the rich pastures of Lincolnshire; or from a large-boned, coarse-wooled breed, long common to the midland counties. They are large, heavy, flat-sided, strong in the bone, and somewhat coarse in the offal and pelt; but full of wool of a combing quality. They are well adapted for the rich, deep feeding soils, upon which weight of mutton and of wool are more material objects for profit than fineness of quality; and, on such lands, the rams are commonly brought to weigh forty pounds the quarter, with a fleece of twelve to fourteen pounds.

3. The *New Leicester, or Dishley Breed*, are an improved kind of the old species. Their forms are handsome; color white. Their heads are clean and small, their necks short, and their breasts full; their bodies are round, with broad, straight backs, but the bellies rather light, or tucked up; their legs and the whole bone are fine, and particularly small in proportion to their size; their pelts thin, and the wool long and fine of its kind, generally averaging seven pounds to the fleece. They are of a quiet disposition, fatten early and kindly, and are capable of being brought to a great weight, on a smaller proportion of food than other breeds of the same size, the fat weathers generally weighing, (when shear-hogs,) twenty-five pounds per quarter, and the ewes twenty-two pounds: the flesh is fine grained and well flavored, but too fat to please most palates.

The final improvement of this breed is unquestionably due to the late Mr. Bakewell; but there are various opinions respecting its origin. Mr. Marshall attributes it to one Joseph Allom, of Clifton, in Leicestershire, who, from being a plough-boy, raised himself by industry to the situation of an eminent farmer, and was the first who distinguished himself, in the midland district, by the possession of a superior breed of sheep. He was known to purchase his ewes at a distance, and it has since been ascertained that he chiefly obtained them in the Melton quarter of the district; but, in whatever manner he raised his breed, it appears certain that it was in high estimation before Mr. Bakewell's time, as it was customary for the most careful breeders to resort to Clifton for ram lambs, for which they gave the then extraordinary price of two and three hundred guineas each: it has, therefore, been not improperly conjectured, by Mr. Marshall, that through the means of Mr. Allom's stock, the breed had passed the first stage of improvement before Mr. Bakewell's day.*

Another author† acquaints us, upon the authority of a gentleman long resident in the county, that about the year 1747 there was a succession of bad seasons, which occasioned a great rot in the sheep upon the clay lands, that in a short space swept away whole flocks. Some of the small farmers were ruined; but the more opulent and enterprising resorted to the high grounds near Fridaythorpe, in Yorkshire, where they purchased some small neat sheep, which, crossed with the few that remained in their own fields, produced some very useful animals. As the numbers bred for a long time afterwards were not equal to the demand, they sent year after year to the same market: jobbers were established, who employed themselves in purchasing sheep on the Yorkshire wolds, for the use of the Leicestershire graziers; and, it is said, that Mr. Bakewell engaged these men not to offer their sheep to public sale till he had seen them, and had taken such as suited him. From these droves, or from the flocks so bred in his neighborhood, and probably from a cross with the Lincolnshire, he bred his first short-legged, square-framed sheep, which were so well received that he went on breeding from his own stock, or crossing with any others that he judged most likely to attain the perfection at which he aimed; by which means, and partly, as it has been thought, by a cross with the Durham sheep, he by slow degrees produced the celebrated breed since distinguished by the name of the farm on which he resided. To him, therefore, may be justly conceded the merit of having effected this valuable improvement; but he has left many able disciples, who have followed closely in his steps, and have even so improved upon his system, that not only Leicestershire, but many of the neighboring counties, may now boast of possessing the breed in the highest perfection.

Many good judges are, however, of opinion, that the endeavors to improve the old breed have been carried too far, and that the introduction of the Dishley stock has reduced the quantity of mutton and wool in a much greater proportion of value, than it has improved the quality. It is admitted, that much good was effected by the early crosses, and that the New Leicesters feed quicker, and come sooner to market, than the old; but they are deficient in inside fat, and are said to carry their flesh more upon the loin than in the leg; which are both serious faults in the eye of the butcher. It is also alleged, that too much value has been placed on fineness of bone, and that in attaining that object, the constitution of the animal has been sacrificed; even, in many instances, to the destruction of the generative power in the ram.

XI. The *Southdown*, of which the specific characters are—faces and legs gray; bones fine; head clean; neck long and small; low before; shoulder wide; light in the fore quarter; sides and chest deep; loin broad; back bone rather too high; thigh full, and twist good; wool very fine and short, (the staple being from two to three inches in length,) weighing an average of three pounds and a half per fleece, when killed at two years old. Flesh fine grained, and of excellent flavor; quick feeders; constitution hardy and vigorous. They are round in the general appearance of the barrel; and, from standing wide on their hind legs, and being shut well in the twist, the leg of down mutton is remarkably round and short, not only cutting handsomely for the table, but weighing heavier than common in proportion to the fore quarter—which are material advantages to the butcher, as they command a ready sale at an advance of a penny per pound over the other joints. Fat weather usually averages about 18 lbs. per quarter; but this has been, in many

* Rural Economy of the Midland Counties, 2d edit. Vol. I. p. 338.

† Mr. Pitts, of Wolverhampton. Agricultural Survey of Leicestershire, p. 249.

instances, increased by late attempts to improve the size of the carcass. Whether these have been judicious, time alone can determine; but it does appear from the evidence of some of the persons examined before a select committee of the House of Lords, appointed in 1828, to take into consideration the state of the British wool trade, that they have injured the quality of the fleece.* This has, indeed, been denied by the breeders; but in all other instances, it has been uniformly found that efforts to increase the flesh have been attended with similar effects. In the present state of the wool trade, this may, however, be of less consequence than it might have been some years ago, for it appears from all the concurrent evidence produced before that committee, that the British carding, or short clothing wools, have been entirely superseded in our manufactories, by the German and other foreign kinds. But too great an increase of carcass may also injure the quality of the mutton, which is now of the very finest kind.

These sheep have been bred for ages past on the chalky soils of the Southdowns, in Sussex, and on such short pasture, and in such exposed situations, they are perhaps the most valuable breed in the kingdom; but they are speading fast not only into similar districts, but into counties better calculated for long-wooled and larger sheep. That the breed will, on those rich soils, degenerate in the superior properties of their flesh and wool, there can be little doubt; but it will still be matter of calculation, whether that disadvantage may not be more than balanced by superior weight. On their native downs, it will probably be found better to preserve them as near to their original size as possible: for if too large for the constitution of the soil, it will be difficult, if not impossible, to maintain the increase of weight; or if maintained, it probably will be with some loss either of the hardiness or activity requisite to their thriving on the land for which they are most appropriate; or with detriment to the qualities of the flesh and wool; and thus apparent advantage may lead to serious future injury.

* See the Evidence in the Printed Report of Mr. C. Bull, of Lewes, Woolstapler; Mr. Sutcliffe, of Huddersfield, ditto; Mr. Brooke, of Honley, near Huddersfield, Cloth-manufacturer; Mr. G. Goodman. of Leeds, Wool-factor; and of Mr. Sheppard, of London, Blackwell Hall factor, Chairman of the London Committee of the Woolen Trade.

From the New York-Farmer.

Felling Trees by Machinery.

Mr. James Hamilton, of this city, the inventor of a machine for *sawing* and *boring* for mechanical and other purposes, and for which he obtained a patent as well in England, Ireland, Scotland and France, as in the United States, has recently invented a machine for *felling trees* in the forest, in which he has succeeded even beyond his most sanguine anticipations; and which will, I have no doubt, prove a valuable labor-saving machine to the settlers of new countries, and even where it is partially settled.

This machine requires very little more space for use, than is required to swing an axe; and it may be used in almost any situation where a man can use an axe. It may be moved by one man, from tree to tree, with great facility, (although two men will work it to better advantage,) who can cut a tree of 20 to 24 inches in diameter in five minutes, and larger ones in proportion. The machine is so constructed as to admit the use of a saw of 3, 4, 6, or even 9 feet in length, according to the size of the tree.

Such is the construction of the machine, and it may be considered as one of its peculiar qualities, that the more rapid its motion, the less power is required to keep it in motion—or, in other words, by the use of a horizontal fly-wheel, which is placed near the ground-sills of the frame, the machine may be made to perform 250 to 300 strokes per minute, each of which shall cut upon an average at least 1-20th of an inch, or at the rate of 8 to 12 inches per minute, on an ordinary sized tree—thereby producing great execution with very little labor.

The simplicity of this machine is such that there is little danger of its getting out of order; and ample means are provided to prevent accidents from the falling of the trees.

However great may be the advantage of this machinery for ordinary use, or for clearing of land for cultivation, in the saving of time, it will be found even more valuable for the purpose of cutting trees for timber; as it will always leave a square and uninjured but, and save the labor and loss of timber, which always results from squaring the end when chopped in the usual mode. In cutting mahogany trees especially, the most valuable part of which is near the root, it will be found of great value. Mr. Hamilton is certainly entitled to much credit for his efforts to facilitate this, the first and most laborious part of the husbandman's labors. None but those who have had experience can appreciate the toil of this labor in a new country; none therefore but such, and not even those until they have used it, can appreciate the value of this invention. In order, however, to give the readers of the Magazine a better idea than they can derive from any written description, a representation, a perspective view of the machine, is given herewith, from which, although accompanied by but few references, any person familiar with machinery will readily understand its operation.

Annexed we give the report of a Committee of the American Institute of this city, showing the estimation in which it is held by that body.

We shall take occasion hereafter again to refer to this machine, and shall take pleasure in recording its performances for the benefit of both the public and the patentee, who deserves well of his countrymen for his inventions in labor-saving machinery.

American Institute, Clinton Hall, City of N. York, June 25, 1835.

The Committee to whom was referred the improved Machine, invented by Mr. James Hamilton, of this city, for felling trees, report:

That this invention of Mr. Hamilton is one of great utility, not only in clearing land of trees, but in felling timber trees for naval and civil architecture.

It cuts the stumps uniformly of an equal height, and at least 12 or 16 inches closer to the ground than is usual, the stumps being left with a horizontal surface, having been cut with a saw, and absorbing more moisture than when cut with an axe, the stumps will decay much faster.

Much of the most valuable part of the timber also is saved in cutting close to the ground, and the end of the timber is square when felled, thus saving the additional time and trouble necessary, in the ordinary way of felling, to prepare it for the mill by butting.

The machine is simple in its construction, and may be worked by one or two men. It can be built for about $50. *It is believed that two men may fell by this machine as much in a given time as twenty can in the ordinary way.* Sufficient provisions are made to prevent the tree from falling on the machine, and to prevent the saw from being pinched.

A tree of 2 feet diameter can be cut with it in five minutes by the power of one man, and with a saw proportionally larger, trees of any magnitude may be cut with ease. This Machine is about three feet wide and four feet long, and is easily moved from tree to tree, as it runs on small wheels.

Your Committee consider this Machine worthy of being mentioned with commendation to the Government of the United States, and to all persons who have occasion to fell trees, either for clearing of land, or for timber.

George Sullivan,
Robert Newell,
James F. Kenney,
} Committee.

I certify that the report, of which the above is a true copy, was adopted at a meeting of the American Institute, June 25, 1835.

Edwin Williams, Rec. Sec.

Meteorological Table,

KEPT AT ROCHESTER, FOR JUNE, 1835.

	10 A. M.				10 P. M.			
Days	therm.	barometer.	winds	sky	therm.	barometer	winds.	sky
1	62	29,50	W	fair	58	29,50	N W	fair*g*
2	74	29,55	W	do	68	29,55	S	do*h*
3	80	29,60	S	do	73	29,55	S	do*i*
4	85	29,50	S W	do	68	29,35	S W	cloudy*j*
5	72	29,35	N E	cloudy*a*	65	29,40	N W	fair
6	66	29,60	N E	fair	62	29,70	N W	do
7	70	29,85	N E	do	58	29,80	N E	do
8	72	29,80	S	do	68	29,70	W	do
9	78	29,75	S W	do	78	29,55	S W	do*k*
10	80	29,55	E	do	80	29,55	E	do*l*
11	84	29,60	W	do	78	29,55	W	do*m*
12	78	29,55	W	cloudy	76	29,55	W	cloudy*n*
13	78	29,55	W	fair	74	29,50	W	do
14	68	29,60	N	cloudy	60	29,60	N	fair*o*
15	68	29,65	N E	fair*b*	57	29,55	N E	do
16	75	29,30	W	cloudy*c*	58	29,35	N W	do
17	60	29,55	W	fair	66	29,50	W	do
18	70	29,45	W	do	68	29,40	S	do
19	62	29,30	E	cloudy*c*	50	29,30	E	cloudy*p*
20	58	29,50	N W	fair	50	29,50	N	fair*q*
21	55	29,50	W	do*c*	50	29,50	N W	do
22	57	29,50	W	cloudy	60	29,50	W	do
23	72	29,50	W	fair	66	29,50	W	do
24	72	29,50	S	do	70	29,50	E	do
25	74	29,45	S	cloudy*d*	66	29,40	E	do
26	82	29,35	S	do*e*	68	29,30	S	cloudy*r*
27	77	29,30	W	fair	65	29,20	S W	do*s*
28	67	29,20	S W	cloudy*f*	63	29,20	W	do
29	64	29,25	W	do*f*	53	29,30	N W	do*t*
30	58	29,40	W	fair*f*	52	29,45	N W	fair

Means.—Ther. 65.9—Barom. 29.48—Rain 4.5 inch.

a Rainy—*b* spring water 51°—*c* high winds—*d* rainy—*e* showers, warm rain—*f* high winds—*g* very pleasant—*h* 84° 1 P. M.—*i* 86° 1 P. M.—*j* rainy—*k* 84° 2 P. M.—*l* 85° 2 P. M.—*m* 90° 2 P. M.—*n* rainy—*o* green peas in market—*p* rains fast all day, 3 inches to this date—*q* fires comfortable—*r* showers all day with thunder—*s* thunder showers all day—*t* showers.

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Natural Science in Common Schools.

We make the following extracts from an "Essay on the introduction of the Natural Sciences into Common Schools, read before the American Lyceum," by Professor Dewey of Pittsfield, Mass.

I. Object and General View of the Natural Sciences.

The design of Natural History is the description of all the natural productions to which man has access. Its subjects are as numerous and diversified as are the objects in the atmosphere, in the waters, and on and within the earth itself. The science carries the student into an examination of this extensive department of the works of the Divine Being.

A general and particular classification of natural objects is indispensable to the description of them. The first great and general division is into three kingdoms, *mineral*, *vegetable*, and *animal*, which comprehend all the objects belonging to our globe.

The Natural History of the *mineral* kingdom comprehends the great subject of *Mineralogy* and *Geology*. Mineralogy classifies and describes all the earths, clays, ores, coals, stones, salts, gases, acids, waters, &c., which are natural productions and which possess one homogeneous nature, or exhibit homogeneous properties. Geology performs the same task with the rocks or masses compounded of the preceding minerals, lying in extensive strata over the globe, and the stata of earth and clay, and examines the general structure and formation of the crust of the earth, and those changes which have taken place in the materials of which the earth is composed.

For the complete description of these objects, the science of *Chemistry* is essential; for no description will approximate completeness, which does not include the knowledge of the *elementary* substances and their properties, of their combinations and actions, and the qualities of the compounds. Chemistry, extensive as it is in all its applications, is, in truth, only a subordinate part of the science of Natural History.

Geography, also, so far as it is a description of natural objects and exhibits the character of the surface of the earth, its rocks, mountains, volcanoes, petrifactions, waters, earths, soils, productions, native or cultivated, is entirely subservient to the great object of Natural History.

Thus far the naturalist contemplates only matter destitute of organization, and operated upon by those unknown and yet well known powers, gravitation, cohesion, and magnetic or electric or chemical agencies. In the other two kingdoms, *organized* objects are described, exhibiting that well known principle, and mysterious influence, that mode of Divine operation, which we familiarly call life.

The *vegetable* kingdom comprehends every planet, as herb, tree, grass, ferns, seaweeds, &c., as well as the lichens and fungi, those often minute and shapeless objects, fastened to rocks and trees, or buried in the earth, or just projecting their heads above its surface. Plants cover the earth and rocks, and throng the waters, from the equator to the highest latitude yet attained by suffering industry. To him, who has thought of the vegetable world, chiefly in the "cedar of Lebanon," or the lofty pine or oak of the forests, or in the general dress of green that decks the country, or in the blushing carnations that adorn our gardens and pastures, or waste their beauty and fragrance on "the desert air," the vegetable kingdom is yet an unknown world; and he is a stranger to the delight with which the *naturalist* searches out the history of a plant too insignificant perhaps to arrest *common* attention for an instant. All this world of vegetable life and wonder is the province of the *botanist* to explore, and to pour into the treasures of Natural History the descriptions of the riches he has procured from these varied and wonderful works of the great Creator.

Botany describes and arranges the whole *kingdom* of plants. The method, whether on what is technically called the *artificial* or the *natural* system, is admirable. A great general division of plants is first made, comprising, in one body, those whose organs, employed in the production of fruit or seed, are *visible*, and in the other body, those whose like organs are wholly invisible, or seen only by high magnifying power. The *latter* division of plants, of which there is a vast multitude, but which present few attractions to most minds, may be passed with only this general consideration; while the *former* division which contains the common, and most useful, and ornamental plants, is open to the examination of any mind. The division of plants into *Classes*, *Orders*, *Genera*, and *Species*, or into *Natural Families* and *Orders*, renders the prosecution of any part of Botany a matter of comparative ease. Connected, as this may be, with the *facts* of their *economical* use, as food for man or beast, as employed in the great variety of arts and manufactures, as medicine, or as mere ornament, and thus supporting rational life, or promoting the convenience and restoring the health of man, or of multiplying the sources of rational enjoyment, and of developing more perfectly the powers and beauty of the human frame, even a partial knowledge of the vegetable kingdom must be deeply interesting to all who can acquire it.

The *animal kingdom* is the last and highest of the three grand divisions of natural objects. The organization is more complex and wonderful, and the life itself of higher character. Although it has not been thought easy, in every instance, to point out the difference between a vegetable and an animal, it will be sufficient to consider *voluntary motion* as the characteristic of the animal kingdom. Even in the lowest grade of shell-fish, confined to a rock, we see indications of the same *voluntary* power.

Zoology is the arrangement and description of animals. The divisions are very logical, and the system very complete. If we consider it only in relation to beasts, birds, fishes, &c., a selection of objects of knowledge is very easy.

To excite our attention, however, to the multitude of objects in the animal kingdom, I shall merely mention some of the divisions in zoology: *Crustaceology*, the science of shell-fish, as crabs, lobsters, centipedes; *Conchology*, of shells, as the clam, oyster, snail, &c.; *Entomology*, of insects properly so called, bugs, flies, bees, &c.; *Herpetology*, of oviparous quadrupeds, crocodiles, turtles, lizards, frogs &c.; *Ophiology*, of snakes and serpents; *Ichthyology*, of fishes; *Cetology*, of whales, dolphins, &c., which produce their young alive, and support them by milk; *Ornithology*, of birds; *Mazology*, of quadrupeds producing living young and suckling them.

* * * * * *

III. Selection of Subjects in Natural Science.

Those parts of Natural History generally considered most appropriate to common schools are Mineralogy and Geology, Botany, and some portion of Zoology. Only parts of these may be made use of.

In *Mineralogy*, the names and general properties of the minerals about a town or district, so as to be readily recognized, might be easily acquired; and in Geology, the knowledge of the rocks and strata of rocks or earth, wherever any were visible: also, the general uses of these substances in the arts. This has already been proved by experiment in several schools in Massachusetts; and minerals have been sent to other schools, by way of exchange.

In *Chemistry*, a large number of experiments of the simpler kind might be performed by means of simple and common articles. A little expense would enable a teacher to exhibit some of the gases, and some of the more striking experiments. I have known boys of ten years of age, in my school, form the illuminating gas by means of a tobacco pipe and some oily seed, as that of the butternut or sunflower, cemented in the bowl by clay, and have seen them delighted with the bright flame produced by its combustion at the end of the stem.

In *Botany*, the parts of plants employed in the descriptions, as the several parts of the flowers and leaves, and the arrangement of plants, as well as the names of many genera and species, might be learned. I knew a lad of eleven years, who, by collecting plants with a botanist two summers, learned the names of four hundred species, and was able to distinguish many more, whose names were not familiar to him, as well as to analyze flowers to a considerable extent.

In *Zoology*, some of the parts of Entomology would be most easy, as insects are so abundant, and many of their changes, are so easily detected; of Herpetology, in relation to tortoises, lizards, &c.; of Conchology, in respect to land and fresh water shells in the country, and collection of shells along the shores of the ocean. Of birds and quadrupeds, the means of knowledge are increasing continually. The collection of specimens would be a healthy exercise, and exert a favorable influence over body and mind, while curiosity would be exerted and gratified.

IV. Advantages of Natural Science in Education.

Besides the value of the knowledge itself, there are indirect advantages attending the study of Natural History, some of which I shall briefly state.

1. This study calls into efficient action the power of discrimination. The constant tendency of the mind is to consider things in the mass. Particularity requires attention, care, direct effort of the mind. Not a step can be taken in Natural History without discrimination. We must *begin* with particulars, and we must *go on* with *particulars*. And we must often begin with a very small part of one particular thing. The mind is trained to minuteness of examination, and to the improvement of its power of seeing and making distinctions. Thence the mind proceeds to generalization. The *inductive* philosophy is the glory of modern times. It begins with particulars, and ascends to general conclusions.

2. The relation of one part to another of an object must be observed. The process of examination is fitted to induce the habit of attending to the relations of things, and of creating the power to consider the relations of things in all cases.

3. It leads to the adoption of system, arrangement, method, classification. Consider the multitude of facts in Chemistry, insulated and independent, until they were reduced to systematic order by some of the master spirits of modern times. In Botany, the wonderful *genius* of Linnæus brought into order the heterogeneous mass of its materials. This system, order, arrangement, is now a part of the subject itself, and the study cannot be prosecuted without this part of logic being practically enforced upon the mind.

4. It awakens curiosity and opens the eyes to look with interest upon the works of God. It rouses the faculties from that listlessness to which there is so strong a tendency in the naturally *indolent* state of mankind, and yields to the mind that gratification so desirable to be obtained from the very exercise of the powers.

5. It stores the mind with objects of thought and interest and prepares it to increase their number. These objects, too, can attend us in all our excursions. The naturalist is ever surrounded with those objects which have roused a deep interest in his mind. Cicero's splendid penegyric on Literature is equally applicable to Natural History.

6. Though many of the subjects have less apparent contrivance, and design, and adaptation, than some others, yet these become more evident, as the knowledge is increased, and are finally seen on every side. The mind becomes more familiar with the works of the great Architect, and perceives more of the benevolence and wisdom of our Heavenly Parent, if the study is conducted in the proper manner.

Hence these studies exert a peculiar influence on the character of the young. The curiosity excited, and the objects presented continually on every side, offering employment for the mind, and exercise for the body, might naturally lead to important intellectual and moral results. I am aware that this advantage is not the most obvious, and I shall only confirm its truth by a mere allusion to several instances of young men, who have, by an attention to Natural Science, been arrested in their mad career to intellectual and moral ruin. Some of these cases are known also to some members of the Lyceum.